

GREENHOUSE GAS REGULATIONS

for the Electricity and Natural Gas Sectors

Frequently Asked Questions

What is the role of the energy agencies in shaping California's greenhouse gas reduction efforts?

The California Public Utilities Commission and California Energy Commission are tasked in California's 2006 Global Warming Solutions Act (Assembly Bill 32, or AB 32) with providing information, analysis and recommendations to the California Air Resources Board (ARB) on ways to reduce greenhouse gas (GHG) emissions in the electricity and natural gas sectors.

Why are the electricity and natural gas sectors being asked to reduce GHG emissions?

As a combined energy sector, electricity and natural gas are second to the transportation sector in California's GHG emissions. Electricity accounts for 25 percent of California's GHG emissions, and natural gas, used at locations other than power plants, accounts for an additional 14 percent. California's electricity sector can significantly contribute to reducing GHG emissions by first pursuing all cost-effective energy efficiency options and increasing renewable electricity generation. Since the electricity sector currently relies mostly on natural gas to produce electricity, it can reduce emissions by providing incentives for more efficient gas-fired technologies and combined heat and power applications. The sector can also reduce emissions by depending less on importing electricity from coal-based facilities, which emits more carbon dioxide per unit of electricity generated than natural gas.



What has been completed so far in the joint efforts of the Energy Commission and the California Public Utilities Commission?

In November 2006, the two Commissions began a proceeding on GHG regulation in the electricity and natural gas sectors. Since that time, numerous workshops have been held on regulatory design issues such as the appropriate point of regulation in the electricity sector, allowance allocation policies, flexible compliance issues, and direct regulatory measures. Approximately 65 stakeholder groups have participated in the proceedings, with many more monitoring. Following public comments on a draft *Interim Opinion*, the two Commissions adopted their revised March 2008 *Interim Opinion* on GHG reductions in the electricity and natural gas sectors.

Following the March *Interim Opinion*, the Commissions released their September *Proposed Final Opinion on Greenhouse Gas Regulatory Strategies (Proposed Final Opinion)* that built on the March *Interim Opinion* and the ARB's *Climate Change Draft Scoping Plan* (June 2008). This *Proposed Final Opinion* is sponsored by Public Utilities Commission President Peevey and Energy Commission AB 32 Implementation Committee members Chairman Pfannenstiel and Commissioner Byron, and provides further recommendations and outlines a variety of options for the ARB to consider in deciding how to design a program to achieve the GHG emission reductions in the electricity sector.

What are the key points in the March *Interim Opinion*?

In the March *Interim Opinion*, the Commissions recommended to the ARB a mix of regulatory requirements and a cap-and-trade system to achieve GHG reductions in the electricity and natural gas sectors. Regulatory requirements include mandates for energy efficiency and renewable energy, which are the first two preferred resources to be used in meeting the state's energy needs, as outlined in California's *Energy Action Plan*. In addition, the Commissions recommended that the first deliverer of electricity to the California grid be the "point of regulation" and responsible for complying with AB 32 electricity sector regulations. For in-state electricity, the deliverer is typically the power plant owner; for imported electricity, the deliverer is typically the entity that imports the electricity into the state.

What are the key points in the September *Proposed Final Opinion*?

In addition to reaffirming the Commissions' commitment to maximize energy efficiency and expand renewable energy development, the *Proposed Final Opinion* recommends an approach for distributing GHG emission allocations and auctioning in a multi-sector cap-and-trade program including direct program approaches and greater detail on the supplemental elements of how such a system might work. The *Proposed Final Opinion* also recognizes the value of energy efficient combined heat and power (CHP) projects and recommends that for large CHP projects, GHG emissions for either electricity consumed on-site and/or delivered to the electricity grid be included in a multi-sector cap-and-trade program.

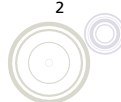
What are the next steps in the joint Commission proceeding?

Over the next several weeks, the *Proposed Final Opinion* is available for public comment before being finalized and adopted by the Commissions. The Energy Commission and the California Public Utilities Commission currently plan to adopt the *Final Opinion* on October 16, 2008 during their public meetings. The *Final Opinion* will then be submitted to the ARB for consideration in the scoping plan process.

How will the GHG emission reduction goals be achieved?

Reductions in GHG emissions will be achieved through measures designed to increase energy efficiency and renewable energy generation. These include required levels of performance, such as statewide standards for buildings, appliances, and delivery of renewable energy, and utility programs for energy efficiency, such as rebates for purchase of efficient appliances.

These programs and standards are the recommended means to reach the reductions targeted for electricity and natural gas in the ARB's *Climate Change Proposed Scoping Plan*. A cap-and-trade program is recommended as an additional measure, to ensure reductions from other sources, and produce additional reductions at lowest cost to consumers.



Why do the two Commissions continue to recommend program measures for energy efficiency and renewable energy? What are some opportunities for California to use energy more efficiently?

California has already achieved great success in energy efficiency, holding per capita electricity use constant since about 1973 while it has continued to increase nationally. These electricity savings have been achieved through standards for buildings and appliances, as well as utility programs promoting energy efficiency. Energy efficiency is, as always, the cheapest and most cost effective energy resource. Achieving higher levels of energy efficiency means we need to maximize use of efficient appliances and systems already available (for example, low-energy lights such as compact fluorescents), as well as make advances in how buildings are heated, cooled, lit, and ventilated.

Renewable resources are essential for reducing GHG emissions and reaching AB 32 goals. Over the last three decades, California has built one of the largest and most diverse renewable portfolios in the world. A goal of 33 percent renewable energy by 2020 is feasible, but only if the state commits to significant investments in transmission on infrastructure and implements programmatic changes.

What is “cap-and-trade”?

A cap-and-trade program is a system designed to achieve a specific limit or cap on emissions. Entities within the jurisdiction of the program would only be allowed to emit GHG emissions if they hold emissions *allowances or permits*. Under a cap-and-trade program these deliverers would be given annual allowances to emit a certain amount of CO₂ and other GHG emissions based on certain criteria. Electricity deliverers would have three options: 1) emit the amount of GHG allowed by their permit or allowances, 2) reduce their own GHG emissions and sell excess allowances to other emitters, or 3) emit more GHG emissions by purchasing unused permits or allowances from another emitter. In this way, emitting entities may interact through an emissions market, while an overall cap on emissions is achieved. The emissions cap in early years of the program will be a slight reduction from current emissions, with the cap lowered in subsequent years and until the required target is reached in 2020.

How is a cap-and-trade program different from a carbon fee?

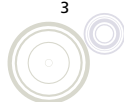
Before AB 32, any entity has been free to emit GHG emissions, at no charge for the carbon emissions. In a cap-and-trade system, a cap is set on the amount of allowed emissions, but not the price of allowances to emit carbon. Allowances can be traded as long as the emission cap is not exceeded. A carbon fee system sets the costs for an allowance but has no emissions limits so there is no need to trade emissions. Those entities wanting to buy an allowance could purchase as many as they could afford. While a carbon fee is likely to lead to fewer emissions, it would not provide the same certainty as a cap-and-trade program of reducing emissions to the specific target set in AB 32.

Will a cap-and-trade program protect consumers?

AB 32 sets California on course to transform its economy into a system that rewards actions to reduce GHG emissions. An advantage of cap-and-trade is that the allowances component of the program encourages reductions at the lowest cost. For example, if power plant “A” can reduce emissions at a cheaper cost than power plant “B”, market principles suggest that power plant “A” will sell allowances to power plant “B”. Consumers are protected by the flexibility offered by a cap-and-trade system because it encourages electricity generators to reduce emissions at the lowest cost, provided that actions to reduce GHG emissions do not increase emissions of toxic air pollutants and that all emissions continue to meet state and federal standards for air quality.

Will cap-and-trade lead to market manipulation?

The two Commissions are acutely aware of the possibility that markets can be manipulated to generate excessive profits. The *Proposed Final Opinion* recommends easing into cap-and-trade, with the bulk of initial emission reductions achieved through regulatory mandates for efficiency and renewable energy. One concern often expressed about a cap-and-trade system is that entities may hoard allowances to drive up prices for future allowances and then sell the original allowances at a profit. The final program design by ARB will include safeguards to prevent market manipulation.



Will cap-and-trade lead to windfall profits for power generators and financial marketers?

The European Union's (EU) cap-and-trade program provides lessons that California is tracking. In the beginning of the EU's program, allowances were allocated at no cost. The *Proposed Final Opinion* recommends that some allowances be required to be purchased from the program's outset – beginning with 20 percent of all allowances in 2012 and increasing to 100 percent starting from 2016. In addition, the cap-and-trade program is being designed to return money to electricity consumers. By 2016, the *Proposed Final Opinion* recommends that power generators would pay for all of their rights to emit GHG emissions with most of these revenues used for the benefit of the electricity ratepayers.

Why is the “combined heat and power” technology specifically discussed in the September *Proposed Final Opinion*?

Many energy projects, most often developed by companies that are not primarily in business to supply energy, simultaneously produce heat and electricity from a single fuel. This practice is known as combined heat and power (CHP), or cogeneration, and is common in the industrial sector. CHP projects are usually more efficient because a single fuel is used to produce both on-site heat and electricity, more total energy is obtained per unit of fuel consumed and less GHG emissions are released. Since CHP projects result in heat and electricity output, the Commissions recognized the value of higher efficiency provided by CHP projects and considered a number of options on how to address CHP as a strategy for reducing GHG's.

What is the Western Climate Initiative?

The Western Climate Initiative (WCI) was launched in February 2007 and currently includes Arizona, British Columbia, California, Manitoba, Montana, New Mexico, Ontario, Oregon, Quebec, Utah, and Washington. WCI's mission is to develop a regional system to address climate change. WCI partners are currently working on designing a market-based mechanism to achieve greenhouse gas reductions by 2020. The WCI target is 15 percent below 2005 levels, which in California is equivalent to the 2020 goal of 1990 levels, as required by AB 32.

What is the E3 model designed to do and what can it show?

The Energy and Environmental Economics, Inc. (E3) model is designed to provide information on supply of low-carbon resources in California and show price impacts and magnitude of GHG reductions that can be expected from different policy initiatives (e.g., energy efficiency, renewable energy). In addition, it can show the impacts on utilities and their customers of different allowance allocation policies in a cap-and-trade program. The E3 model is a scenario tool that is dependent on assumptions about the representation of the electricity system and future conditions. While the accuracy of individual results taken in isolation may easily and legitimately be questioned, the E3 model can accurately show the impacts of one policy option relative to another, but its results are dependent on input assumptions. More information on the E3 model is available at: www.ethree.ca/cpuc_ghg_model.html.